WHAT IS CLAIMED IS:

1. A radiological imaging apparatus, comprising:

an X-ray source which is moved around a bed for supporting a test subject; and

a radiation detecting device having a γ-ray detecting section for outputting detection signal of γ-rays, and an X -ray detecting section for outputting detection signal of X-rays

wherein at least part of said X-ray detecting section is positioned in a region formed between one end and the other end of said γ-ray detecting section in the longitudinal direction of said bed.

2. The radiological imaging apparatus according to claim 1, wherein said X-ray source is positioned in the region.

3. The radiological imaging apparatus according to claim 1, further comprising an X-ray source transfer apparatus for moving said X-ray source in the longitudinal direction.

4. The radiological imaging apparatus according to claim 1, wherein said γ-ray detecting section and said X-ray detecting section are integrated to constitute a radiation detecting section serving as said γ-ray detecting section and said X-ray detecting section, and said radiation detecting section is constituted by said plurality of radiation detectors for outputting both of said γ-ray detection signal and said X-ray detection signal.

5. The radiological imaging apparatus according to claim 1, wherein said γ-ray detecting section and said X-ray detecting section are separately provided.

6. The radiological imaging apparatus according to claim 1, further comprising a tomographic image producing apparatus for producing a tomographic image using first information obtained from said γ-ray detection signal and second information obtained from said X-ray detection signal.

7. The radiological imaging apparatus according to claim 1, further comprising:

a first signal processing apparatus for inputting a detection signal of a γ-ray from radiation detectors of said γ-ray detecting section and outputting first information used for producing first tomographic image information including a part on which radiopharmaceutical concentrates; and

a second signal processing apparatus for inputting a detection signal of said X-ray from said radiation detectors of said X-ray detecting section and outputting second information used for producing second tomographic image information including bones, said second signal processing apparatus being provided for each of radiation detectors of said X-ray detecting section.

8. The radiological imaging apparatus according to claim 4, further comprising a first signal processor for inputting a detection signal of a γ-ray from said

radiation detectors of said γ-ray detecting section and outputting first information used for producing first tomographic image information including a part on which radiopharmaceutical concentrates, and a second image processor for inputting a detection signal of said X-ray from said radiation detectors of said X-ray detecting section and outputting second information used for producing second tomographic image information including bones, said second signal processor being provided for each of said radiation detectors of said X-ray detecting section.

9. The radiological imaging apparatus according to claim 7,

wherein said first signal processing apparatus comprises:

a γ-ray detection signal processor which inputs said γ-ray detection signal from said radiation detectors of said γ-ray detecting section and is provided for each of said radiation detectors; and

a counter which inputs output signals from said γ-ray detection signal processors and outputs position information of a pair of said radiation detectors detecting the γ-rays in a set time and counter information of the detected γ-rays as said first information, and

said radiological imaging apparatus further comprises a tomographic image producing apparatus for producing tomographic image information using said

position information, said counter information, and said second information.

10. A radiological imaging apparatus, comprising:

an X-ray source for moving around a bed to emit an X-ray;

a γ-ray detecting section which is placed around said bed, detects a γ-ray, and outputs a detection signal of the γ-ray; and

an X-ray detecting section for detecting the X-ray and outputting a detection signal of the X-ray at a position on which the γ-ray is detected.

11. The radiological imaging apparatus according to claim 10, further comprising a tomographic image producing apparatus which produces first tomographic image information by using first information obtained from said γ-ray detection signal, second tomographic image information by using second information obtained from said X-ray detection signal, and third tomographic image information including said first tomographic image information and said second tomographic image information.

12. The radiological imaging apparatus according to claim 10, further comprising a first X-ray source transfer apparatus for moving said X-ray source around said bed in a circumferential direction, and a second X-ray source transfer apparatus for moving said X-ray source in the longitudinal direction.

13. A radiological imaging apparatus, comprising:

an X-ray source for irradiating an X-ray onto a test object;

an X-ray detecting section for detecting an X-ray and outputting a detection signal of the X-ray, said X-ray being emitted from said X-ray source and passing through said test object; and

a γ-ray detecting section for detecting a γ-ray emitted from said examinee at a position of said test object irradiated with the X-ray and outputting a detection signal of the γ-ray.

14. A radiological imaging apparatus, comprising:

a bed for placing a test object;

radiation detectors for detecting a γ-ray emitted from said test object; and

an X-ray source for irradiating an X-ray onto said test object,

wherein said radiation detectors detect the X-ray passing through said test object, and

said imaging apparatus further comprises signal processing apparatus for inputting a detection signal of the γ-ray and a detection signal of the X-ray, said signals being outputted from said radiation detectors.

15. A radiological imaging apparatus, comprising:

a bed for placing a test object;

a γ-ray detecting section which is placed substantially in parallel with the longitudinal direction of said bed and outputs a detection signal of

a γ-ray;

an X-ray source positioned in a region formed between one end and the other end of said γ-ray detecting section in the longitudinal direction; and

an X-ray detecting section for outputting a detection signal of an X-ray.

16. A radiological imaging apparatus, comprising:

a bed for placing a test object;

a γ-ray detecting section which has a plurality of gaps placed substantially in parallel with the longitudinal direction of said bed at intervals in the longitudinal direction, and outputs a detection signal of a γ-ray;

an X-ray detecting section for outputting a detection signal of an X-ray;

an X-ray source for irradiating the X-ray onto said test object through said gaps; and

an X-ray source transfer apparatus for moving said X-ray source in the longitudinal direction.

17. The radiological imaging apparatus according to claim 16, further comprising:

a first guide for guiding said X-ray source transfer apparatus in the longitudinal direction; and

a second guide for guiding said X-ray source transfer apparatus in a direction perpendicular to the longitudinal direction around said bed.

18. The radiological imaging apparatus according to claim 16, wherein said γ-ray detecting section and

said X-ray detecting section are integrated to constitute a radiation detecting section serving as said γ-ray detecting section and said X-ray detecting section, said radiation detecting section being constituted by a plurality of radiation detectors for outputting the γ-ray detection signal and the X-ray detection signal.

19. The radiological imaging apparatus according to claim 16, wherein said γ-ray detecting section is placed around said bed, and said X-ray detecting section is placed outside said γ-ray detecting section and detects the X-ray passing through said gaps formed on said γ-ray detecting section.

20. The radiological imaging apparatus according to claim 16, wherein said γ-ray detecting section is placed around said bed and said X-ray detecting section is placed inside said γ-ray detecting section.

21. The radiological imaging apparatus according to claim 16, wherein said radiation detectors constituting said γ-ray detecting section and said X-ray detecting section are semiconductor radiation detectors.

22. A radiological imaging apparatus, comprising:

a bed for placing a test object;

a γ-ray detecting device; and

an X-ray detecting device detachably attached to said γ-ray detecting device,

wherein said γ-ray detecting device has a γ-

ray detecting section which is placed substantially in parallel with the longitudinal direction of said bed and outputs a detection signal of a γ-ray, and

said X-ray detecting device has an X-ray detecting section for outputting a detection signal of an X-ray, an X-ray source for irradiating the X-ray onto said test object through gaps formed on said γ-ray detecting section, and an X-ray source transfer apparatus for moving said X-ray source in the longitudinal direction.

23. A radiological imaging apparatus, comprising:

a bed for placing a test object;

an image pickup apparatus; and

a controller,

wherein said image pickup apparatus has a plurality of first radiation detectors and includes a γ-ray detecting section positioned around said bed, an X-ray detecting section which has a plurality of second radiation detectors and outputs a detection signal of an X-ray, an X-ray source for emitting an X-ray to said test object, and first X-ray source transfer means for moving said X-ray source in the circumferential direction around said bed; and

said imaging apparatus further comprises a first signal processor for inputting γ-ray detection signals from said first radiation detectors and outputting first information, a second processor for inputting X-ray detection signals from said second

radiation detectors and outputting second information, and

said controller performs control such that a plurality of radiation detectors and a power supply are connected to apply voltage to the plurality of radiation detectors, an X-ray is emitted from said X-ray source when a set time elapses from application of voltage to said radiation detectors, and said X-ray source emitting said X-ray is moved in the circumferential direction using said first X-ray source transfer apparatus.

24. The radiological imaging apparatus according to claim 23, wherein said radiation detectors are semiconductor radiation detectors.

25. The radiological imaging apparatus according to claim 23, wherein said γ-ray detecting section and said X-ray detecting section are integrated to constitute a radiation detecting section serving as said γ-ray detecting section and said X-ray detecting section, and said first and second radiation detectors constituting said radiation detecting section are a plurality of radiation detectors for outputting said γ-ray detection signal and said X-ray detection signal.

26. The radiological imaging apparatus according to claim 23, wherein said γ-ray detecting section and said X-ray detecting section are separately provided.

27. The radiological imaging apparatus according to claim 23, further comprising a tomographic image

producing apparatus for producing first tomographic image information including an image on which radiopharmaceutical concentrates using said first information, producing second tomographic image information including an image of bones using said second information, and producing third tomographic image information including said first tomographic image information and said second tomographic image information.

28. The radiological imaging apparatus according to claim 23, further comprising:

a first X-ray source transfer apparatus for moving said X-ray source in the circumferential direction around said bed; and

a second X-ray source transfer apparatus for moving said X-ray source in the longitudinal direction of said bed,

wherein said controller controls movement of said first X-ray source transfer apparatus in the circumferential direction and movement of said second X-ray source transfer apparatus in the axial direction.

29. A radiological imaging method, comprising the steps of:

detecting the X-ray passing through a test object administered with radiopharmaceutical; and

detecting a γ-ray emitted from said test object due to said radiopharmaceutical in said test object at a position of said test object irradiated

with the X-ray.

30. The radiological imaging method according to claim 29, wherein said γ-ray is emitted from a part where an X-ray passes through in said test object.

31. The radiological imaging method according to claim 29, further comprising a step of producing tomographic image information using first information obtained from said γ-ray detection signal and second information obtained from said X-ray detection signal.

32. A radiological imaging method, comprising the steps of:

detecting a γ-ray emitted from a part where radiopharmaceutical concentrates in a test object;

irradiating an X-ray onto said test object and detecting an X-ray passing through the part, said test object being placed on a bed when radiation is detected;

detecting the γ-ray emitted from the part while said bed on which said test object is placed exists on a position for detecting the X-ray passing through the part.

33. The radiological imaging method according to claim 32, further comprising a step of detecting said γ-ray and said X-ray using a common radiation detector.

34. The radiological imaging method according to claim 32, further comprising a step of moving an X-ray source for emitting the X-ray around said test object when said X-ray is detected.

35. A radiological imaging method, comprising the steps of:

detecting a γ-ray emitted from a part where radiopharmaceutical concentrates in a test object;

irradiating an X-ray onto said test object and detecting an X-ray passing through the part, said test object being placed on a bed when radiation is detected;

detecting the γ-ray using a γ-ray detecting section including a plurality of radiation detectors aligned substantially in parallel with the longitudinal direction of said bed; and

irradiating the X-ray to the part of said test object through gaps formed on said γ-ray detecting section.

36. The radiological imaging method according to claim 35, further comprising a step of detecting an X-ray passing through the part of said test object using an X-ray detecting section through the gaps formed on said γ-ray detecting section.

37. The radiological imaging method according to claim 35, further comprising a step of moving an X-ray source for emitting the X-ray, substantially in parallel with the longitudinal direction of said bed.

38. A radiological imaging method, comprising the steps of:

detecting a γ-ray emitted from a part where radiopharmaceutical concentrates in a test object;

irradiating an X-ray onto said test object and detecting an X-ray passing through the part, said test object being placed on a bed when radiation is detected;

detecting the γ-ray using a γ-ray detecting section including a plurality of radiation detectors aligned substantially in parallel with the longitudinal direction of said bed; and

irradiating the X-ray onto test object between one end and the other end of said γ-ray detecting section in the direction.

39. A radiological imaging method, comprising the steps of:

detecting a γ-ray emitted from said test object during a radiological imaging examination period for obtaining a γ-ray detection signal required for production of tomographic image information of said test object; and

detecting an X-ray passing through said test object during said radiological imaging examination period.

40. The radiological imaging method according to claim 39, further comprising the steps of:

producing first tomographic image information using first information obtained from the γ-ray detection signal;

producing second tomographic image information using second information obtained from the

X-ray detection signal; and

producing third tomographic image information including said first tomographic image information and said second tomographic image information on said test object.

41. The radiological imaging method according to claim 39, further comprising the steps of:

inputting the γ-ray detection signal to a γ-ray detection signal processor; and

inputting the X-ray detection signal to an X-ray detection signal processor.

42. The radiological imaging method according to claim 39, further comprising a step of detecting the X-ray in a part of said radiological imaging examination period.

43. The radiological imaging method according to claim 39, wherein radiation detectors for detecting the γ-ray are used as said radiation detectors for detecting the X-ray.

44. A radiological imaging method, comprising the steps of:

detecting a γ-ray emitted from a test object using a plurality of radiation detectors placed in a radiological imaging apparatus; and

detecting an X-ray passing through said test object using some of said radiation detectors at some point.

45. A radiological imaging method, comprising the

steps of:

detecting an X-ray passing through the test object using some of a plurality of radiation detectors provided in a radiological imaging apparatus; and

detecting a γ-ray emitted from said test object using said radiation detectors other than some radiation detectors when some radiation detectors detect the X-ray.

46. The radiological imaging method according to claim 44, further comprising the steps of:

producing first tomographic image information on said test object based on the γ-ray detection signal;

producing second tomographic image information on said test object based on the X-ray detection signal; and

producing third tomographic image information on said test object, said third tomographic image information including said first tomographic image information and second tomographic image information.

47. The radiological imaging method according to claim 44, wherein radiation detectors for detecting the γ-ray are used as said radiation detectors for detecting the X-ray.

48. The radiological imaging method according to claim 47, further comprising the steps of:

inputting a detection signal of the γ-ray to a γ-ray detection signal processor;

detecting an X-ray passing through said test

object; and

inputting a detection signal of the X-ray to an X-ray detection signal processor.

49. The radiological imaging method according to claim 39, further comprising a step of moving an X-ray source within an examination range set in a longitudinal direction of said test object, said X-ray source emitting an X-ray to be irradiated onto said test object.

50. A radiological imaging support method comprising the steps of:

detecting a γ-ray emitted from a test object in a radiological imaging examination period for obtaining a detection signal of a γ-ray required for production of tomographic image information of said test object, said detection being performed by a radiological imaging support provider;

detecting an X-ray passing through said test object in the radiological imaging examination period for detecting the γ-ray;

producing tomographic image data of said test object using a detection signal of the γ-ray and a detection signal of the X-ray; and

providing the produced tomographic image data to a medical institution by said radiological imaging support provider.

51. The radiological imaging support method according to claim 50, wherein the tomographic image

data is provided to said medical institution by said radiological imaging support provider via a communication line.

52. The radiological imaging support method according to claim 50, wherein the X-ray is detected in a part of said radiological imaging examination period.

53. The radiological imaging support method according to claim 50, wherein the X-ray for obtaining an X-ray detection signal is detected using radiation detectors for detecting the γ-ray for obtaining a γ-ray detection signal.